ENERGY EFFICIENCY SUCCESS STORY | 2013

FRAN AND JEAN CUMMINGS HOME

Prepared by Concord Light, your local electric utility

Fran and Jean moved into this late '50s split-level home on Minot Road near the Great Meadows Wildlife Refuge in 1975

Upgrades Included:

- Replacement of Aging Oil Furnace with Electrically-Powered Heat Pump
- Sealing and Insulation of Air Ducts
- Attic Improvements
  - Additional Insulation
  - Hatch Cover
  - Sealing Leaks and Cracks
- Replacement of Leaky Sliding Door

Energy Audit

Concord Light performed a no-cost energy audit of the Cummings home.

"We had insulated the attic when we bought the house. I hadn't thought it would pay to add more insulation, but the auditor advised us that it was worthwhile. He also noticed that some of the insulation on the vertical surfaces in the attic had fallen down."

--Fran

Attic Insulation and Air Sealing

After using spray foam to seal up spots where warm air was leaking into the attic around the chimney and duct registers, and through plumbing and electrical penetrations, the insulation contractor blew in more loose cellulose and installed foil-faced insulation board over the existing fiberglass on the vertical surfaces. They also sealed around the edges of the insulation board with spray foam.

Air Source Heat Pump

Air handler and sealed, insulated ducts

Condenser

"The company that installed the heat pump had already installed this brand and model in other homes and evaluated its performance. They were confident that it would keep us warm during Massachusetts winters. And, they were right. Plus, the temperature is steadier than it was with our 1950's era oil furnace and thermostat." -- Fran

Heat Pump Performance

The central heat pump system provides AC in summer by moving heat from inside the house to the outdoors. In winter, it does the reverse, moving heat from the outdoors to inside the house. And yes, there is some heat in the winter air, as long as the outdoor temperature is above absolute zero (−459.67°F)! The Cummingses have found that the heat pump alone is able to keep their home warm until the outdoor temperature falls below 15°F -20°F. In the relatively few hours with colder temperatures, their heat pump needs some help from a conventional electric resistance heating element.

Why A Heat Pump?

Because they don't have a gas main on their street, the Cummings family chose a heat pump as a cost-effective alternative to heating with oil. Even compared to the estimated cost of running a new, high efficiency oil furnace, their heat pump costs during the 2012 – 2013 winter indicate that they will save about $1,000 per year.

Heat Pump Tips

- Use a contractor with experience installing systems that have a good track record in our climate.
- A heat pump doesn't heat air up to as high a temperature as a conventional furnace, but stays on more in order to deliver the warmth you need. This means:
  - If air coming out of the register is blowing on you, it may sometimes feel cool. The Cummingses adjusted by moving one chair in their living room out of the path of air flow.
  - The heat pump fan is on most of the time in colder weather. It can sometimes be a little loud when the fan speeds up to deliver more heat.
- Heavy snow fall around the condenser can restrict air flow. Consider having the condenser raised up off the ground, or be prepared to clear snow away from the unit.

Net Attic Sealing and Insulation Costs

UPGRADE	
Attic Sealing and Insulation	$1,300
Concord Light Electric Heat Weatherization Rebate	-$420
Net Attic Sealing/Insulation Cost to Cummings Family	**$880**

Heat Pump: Credits and Rebates

Concord Light Central AC Rebate	$375
Federal Tax Credit for Heat Pump	$300

And, Other Benefits…

"Now that we're spending less on heating, we felt we could open up a second living room that we had kept closed off unless we needed it. Now we use the room often, without having to open it up and wait until it gets warm." -- Fran

"Having 2-year and 4-year old grandsons has focused our concern about climate change. Switching from an oil furnace to an all-electric heat pump, along with the other measures we took, will reduce our carbon footprint by 2 to 3 tons of carbon dioxide every year. This is a reduction of 20% to 30% in the CO_2 emissions from our home (including heat and power but not including transportation)." -- Fran

For more information on Concord Light's free home energy audits and energy efficiency rebates, go to concordma.gov/cmlp or contact Jan Aceti at 978-318-3151 or jaceti@concordma.gov.